An Exercise In Signal Processing Techniques

[Book] An Exercise In Signal Processing Techniques

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An Exercise In Signal Processing

Advanced Signal Processing Exercise : Steepest Descent
SGN-21006 Advanced Signal Processing Exercise 4: Steepest Descent Assistant: Petri Helin, petrihelin@tutfi Introduction Consider the same application as in the previous exercise, channel equalization (Fig 1) Instead of solving the Wiener-Hopf equations, you are asked to solve the FIR filter coefficients of the channel equalizer using the
Exercises in Digital Signal Processing 1 The Discrete ...
Exercises in Digital Signal Processing Ivan W Selesnick January 27, 2015 Contents 1 The Discrete Fourier Transform1 2 The Fast Fourier Transform16 3 Filters18 4 Linear-Phase FIR Digital Filters29 5 Windows38 6 Least Square Filter Design50 7 Minimax Filter Design54 8 Spectral Factorization56 9 Minimum-Phase Filter Design58 10 IIR Filter Design64
Correction of the exercises from the book A Wavelet Tour ...
Correction of the exercises from the book A Wavelet Tour of Signal Processing Gabriel Peyré Ceremade Université Paris-Dauphine gabrielpeyre@ceremadedauphinefr
EL 713: Digital Signal Processing Extra Problem Solutions
EL 713: Digital Signal Processing Extra Problem Solutions Prof Ivan Selesnick, Polytechnic University 45 For the transfer function H(z) = z−1 +z−6 of an FIR linear-phase filter, (a) sketch the impulse response (b) what is the type of the filter (I, II, III, or IV)?
Chapter 11, Multirate Signal Processing: Problem Solutions ...
Signal Processing for Communications EPFL Winter Semester 2007/2008 Prof Suhas Diggavi Handout # 38, Friday, December 21st, 2007 Chapter ...
“Signal Processing: A Mathematical Approach” - Answers to ...
Exercise 32: Now find the formulas giving the horizontal and vertical coordinates of the position of a particular rider at an arbitrary time t in the time

interval [0,T]

Exercise 0 - Open and Run a Virtual Instrument (Slide 12)

Exercise 0 - Open and Run a Virtual Instrument (Slide 12) Examine the Signal Generation and Processing VI and run it Change the frequencies and types of the input signals and notice how the display on the graph changes

Exercises on Fourier Series - Carleton University

Exercises on Fourier Series Exercise Set 1 1 Find the Fourier series of the functionf defined by f(x)= −1if−π<x<0, 1if0<x<π and f has period 2πWhat does the Fourier series converge to at x =0? Answer: f(x) ~ 4

Signal Processing on a Graphics Card

Signal Processing on a Graphics Card An Analysis of Performance and Accuracy Prepared By: Arjun Radhakrishnan Supervised By: Prof Michael Inggs A dissertation submitted to the Department of Electrical Engineering, University of Cape Town, in fulfilment of the requirements for the degree of Bachelor of Science in Engineering Cape Town

Signal Processing Techniques for Removing Noise from ECG ...

signal affected by electrode motion artifact is shown in (Figure 5) below Figure 5: ECG affected by electrode motion artifacts [2] 2 Techniques to Remove Artifacts from ECG Signal In this section, various signal processing methods for removing the artifacts from ECG signal have been described These methods are simple yet effective The

TIES324 Signal processing Exercise #3 - Jyväskylän yliopisto

TIES324 Signal processing Exercise #3 1 The Nyquist frequency of a continuous-time signal !!(!) signal is sampled at a 20kHz rate and the sampled sequence is passed through an ideal lowpass filter with a cutoff frequency of 900Hz, generating a continuous-time signal y a(t)

Digital Signal Processing: A User’s Guide

Digital signal processing (DSP) has matured in the past few decades from an obscure research discipline to a large body of practical methods with very broad application Both practicing engineers and students specializing in signal processing need a clear exposition of the ideas and methods comprising the core signal

ELG4172 Digital Signal Processing - Engineering

ELG4172 Digital Signal Processing • Exercise-1 Presented by: Hitham Jleed 2 uOttawaca Exercises to judge whether a system is : Memory-Less Linear Time-invarient Causal Stable 3 uOttawaca 4 uOttawaca 5 uOttawaca Solution From the Textbook (Openheim) 6 uOttawaca From the Textbook (Openheim) One Period 7 uOttawaca

ECG SIGNAL PROCESSING AND HEART RATE FREQUENCY ...

ECG SIGNAL PROCESSING AND HEART RATE FREQUENCY DETECTION METHODS J Parak, J Havlik Department of Circuit Theory, Faculty of Electrical Engineering Czech Technical University in Prague Abstract Digital signal processing and data analysis are very often used methods in a biomedical engineering research

Digital Signals - Sampling and Quantization

explicit An elementary example of such a signal is a sinosoid When we want to represent such a sinosoid in the digital domain, we have to do two things: sampling and quantization which are described in turn Sampling The first thing we have to do, is to obtain signal values from the continuous signal at regular time-intervals

Digital Signal Processing Exercises of Lecture 4 (MM4)

b) How should fs be chosen, so that y(t) =A +10cos(20πt −π/ 4)? c) What is the value of the constant A ? Thanks Borge Lindberg for providing the exercises and solutions

Exercise 5. Butterworth Filters - UW Oceanography

Exercise 5 Butterworth Filters The Matlab signal processing toolbox has an overwhelming array of options for designing and implementing filters, but for many geo-scientific applications we can use very simple filters In this exercise we are going to explore the properties and use of a Butterworth IIR digital filter –

APPLIED SIGNAL PROCESSING 2005 EXERCISE 1

APPLIED SIGNAL PROCESSING 2005 EXERCISE 1 a) Design of IIR fllter The flle an audio signal with a specifled fundamental frequency f0 (given in Hz) when the sampling frequency is fs (Hz) Use the result to write a program which plays a given sequence of tones Created Date:

Computer exercise 2: Least Mean Square (LMS)

to u(n) Furthermore, the input signal vector uis required to be a column vector Computer exercise 22 Now you shall verify that your LMS algorithm works properly As a simple test, the adaptive filter should identify a short FIR-filter, shown in the figure below Adaptive Signal Processing 2010 Computer Exercise 2

Digital Signal Processing - University of Cambridge

Digital signal processing Analog/digital and digital/analog converter, CPU, DSP, ASIC, FPGA Advantages: → noise is easy to control after initial quantization → highly linear (within limited dynamic range) → complex algorithms fit into a single chip → flexibility, parameters can easily be varied in software → digital processing is insensitive to component tolerances, aging,